

in which  $M^{II}$  is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba;  $M^{III}$  is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of  $0 < x \leq 0.1$  and  $0 < y \leq 0.1$ , respectively, to cause the phosphor to emit a green light;

and

measuring a variation per unit time of strength of the green light.

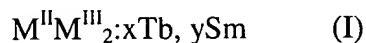
2. (Original) The method of claim 1, wherein the dosimeter is in the form of a sheet which comprises a support and a phosphor layer containing the phosphor.

3. (Original) The method of claim 1, wherein  $M^{II}$  in the formula (I) is at least one of Sr and Ba, and  $M^{III}$  in the formula (I) is at least one of Y and Gd.

4. (Original) The method of claim 1, which further comprises the step of preparing a calibration curve by applying a standard target radiation in a known dose to the same dosimeter, and measuring a variation per unit time of strength of a green light emitted by the phosphor.

5. (Previously Amended) A method of producing a radiation image which comprises the steps of:

applying a radiation having passed through a target or having been radiated by a target onto a radiation image storage panel containing a layer of terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):



in which  $M^{II}$  is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba;  $M^{III}$  is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of  $0 < x \leq 0.1$  and  $0 < y \leq 0.1$ , respectively, to cause the phosphor to emit a green light;

determining a variation per unit time of strength of the green light in each pixel which is imaginarily set on the storage panel, to obtain two-dimensional image data;

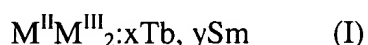
and

producing a radiation image from the obtained image data.

6. (Original) The method of claim 5, wherein  $M^{II}$  in the formula (I) is at least one of Sr and Ba, and  $M^{III}$  in the formula (I) is at least one of Y and Gd.

7. (Currently Amended) A method for measuring a dose of ultraviolet rays which comprises the steps of:

applying a target ultraviolet rays to a means containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):



in which  $M^{II}$  is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba;  $M^{III}$  is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of  $0 < x \leq 0.1$  and  $0 < y \leq 0.1$ , respectively, to cause the phosphor to emit a green light;

and

measuring a variation per unit time of strength of the green light.

8. (Original) The method of claim 7, wherein the means is in the form of a sheet

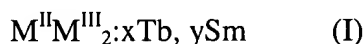
which comprises a support and a phosphor layer containing the phosphor.

9. (Original) The method of claim 7, wherein  $M^{II}$  in the formula (I) is at least one of Sr and Ba, and  $M^{III}$  in the formula (I) is at least one of Y and Gd.

10. (Original) The method of claim 7, which further comprises the step of preparing a calibration curve by applying standard target ultraviolet rays in a known dose to the same means, and measuring a variation per unit time of strength of a green light emitted by the phosphor.

11. (Currently Amended) A method for measuring a radiation dose which comprises the steps of:

applying ultraviolet rays to a dosimeter containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):



in which  $M^{II}$  is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba;  $M^{III}$  is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of  $0 < x \leq 0.1$  and  $0 < y \leq 0.1$ , respectively, to cause the phosphor to emit a first green light and a first red light;

measuring a strength of the first green light and a strength of the first red light;

applying a target radiation to the dosimeter, so as to cause variation of atomic valency for the terbium and samarium;

applying ultraviolet rays to the dosimeter to which the target radiation has been applied, to cause the phosphor to emit a second green light and a second red light;

measuring a strength of the ~~latter~~ second green light and a strength of the ~~latter~~ second

red light;

and

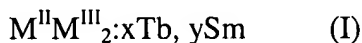
comparing the former strengths of the first green light and first red light with the ~~latter~~ strengths of the second green light and the second red light.

12. (Original) The method of claim 11, wherein the dosimeter is in the form of a sheet which comprises a support and a phosphor layer containing the phosphor.

13. (Original) The method of claim 11, wherein  $M^{II}$  in the formula (I) is at least one of Sr and Ba, and  $M^{III}$  in the formula (I) is at least one of Y and Gd.

14. (Currently Amended) A method of producing a radiation image which comprises the steps of:

applying ultraviolet rays to a radiation image storage panel containing a layer of a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):



in which  $M^{II}$  is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba;  $M^{III}$  is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of  $0 < x \leq 0.1$  and  $0 < y \leq 0.1$ , respectively, to cause the phosphor to emit a first green light and a first red light;

measuring in each pixel which is imaginarily set on the storage panel, a strength of the first green light and a strength of the first red light, to obtain two-dimensional image data;

applying a radiation having passed through a target or having been radiated by a target onto said radiation image storage panel, so as to cause variation of atomic valency for the terbium and samarium in each pixel;

applying ultraviolet rays to the storage panel to which the target radiation has been applied, to cause the phosphor to emit a second green light and a second red light;

determining in each pixel a strength of the ~~latter~~second green ~~light~~light and a strength of the ~~latter~~second red light, to obtain two-dimensional image data; and

processing the ~~latter~~ strengths of the second green light and the second red light with reference to the ~~former~~ strengths of the first green light and the first red light in each pixel, for producing a radiation image from the obtained image data.